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ABSTRACT

Results of the first 6 months of the Ypsilanti-Carnegie Infant Education Project are provided, including quantitative data and a case study, a discussion of the curriculum employed in the home and illustration of curriculum practices, and research design changes. The purpose of the project is to assess the effectiveness of systematic intervention by public school teachers, starting at the period of infancy, in preventing the intellectual deficits commonly found in children from disadvantaged populations. To control some of the important variables, four groups have been established: an experimental group, a contrast group, and two control groups. The experimental group utilizes home teaching by public school teachers; the contrast groups employs home visits by volunteer college students and young women from the community to provide adult attention for the child and service to the family; one control group is a no-treatment group receiving only the same testing as other groups; and the other control group is a no-treatment, no-testing group. Testing instruments used are: Maternal Behavior Inventory; Teacher's Report, Form B; Infant Cognitive Home Environment Scale; Infant Information Inventory; Infant and Maternal Medical History; Ypsilanti Picture Sorting Inventory; Bayley Infant Scales of Development; and Kagan Measures. The pilot study conducted during the first 6 months of the project focused upon organization of the home teaching program, the data collection procedures, and staff orientation. (DB)

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YPSILANTI-CARNEGIE INFANT EDUCATION PROJECT

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YPSILANTI-CARNEGIE INFANT EDUCATION PROJECT

PROGRESS REPORT

September, 1969

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PROGRESS REPORT

YPSILANTI-CARNEGIE INFANT EDUCATION PROJECT

PART I

OVERVIEW OF THE PROJECT

The Ypsilanti-Carnegie Infant Education Project was established in January 1968 and funded by the Carnegie Corporation and the Ypsilanti Public Schools. This progress report presents the results of the first six months of the project, including quantitative data and a case study (Part 2). Of special importance is the discussion of the curriculum employed in the home, with illustration of curriculum practices (Part 3). Research design changes from the original proposed are also reviewed (Part 4).

The infant education project is the outgrowth of the findings from the Ypsilanti Perry Preschool Project (Weikart, 1967) and the Ypsilanti Home Teaching Project (Weikart and Lambie, 1968). The project is based on two assumptions: 1) Preventative programming must start earlier than current preschool efforts since the essential framework for intellectual growth is completed by age three. 2) Preventative intervention has unusual potential for success when provided as a home teaching program for both the mother and her infant. Early infancy is a time of extremely rapid intellectual and physical growth, and it is the period when primary emotional relationships are established; most mothers from all cultural backgrounds hold high hopes for their infants and welcome assistance in attaining their goals.

The purpose of the project is to assess the effectiveness of systematic intervention by public school teachers,starting at the period of infancy, in preventing the intellectual deficits commonly found in children from disadvantaged populations. In order to control some of the important variables, four groups have been established: an experimental group, a contrast group, and two control groups. The experimental group utilizes home teaching by public school teachers as the method of program operation. In this plan, a public school teacher goes into the home to work with the mother and her infant once each week for an hour. During the visit, the teacher expresses her genuine interest in the mother and what she is doing with the child, especially as it relates to language, motoric development and cognitive growth. The mother is helped to become aware of the infant's development in each of these key areas by learning to observe her child closely, and she is encouraged to respond to the child as each small step of growth evolves. By this process, the mother becomes deeply involved in the

child's development. Specifically the visits are organized around five points: individualized programming for each mother-child dyad, development of the mother's teaching style, language stule, control techniques, and direct tutoring of the child. As the overall goal is to help each mother become an effective teacher of her child, the project staff strongly rejects the development of a standardized "script" of activities for the teacher, the mother, or the child. The home teaching process is carefully supervised and developed in a systematic fashion by the project staff.

The contrast group employs home visits by volunteer college students and young women from the community. The focus of these visits is adult attention for the child and service to the family. The "intuitive wisdom" of the volunteers by a trained social worker.

One control group is the tradition no-treatment group receiving only the same testing as the other groups. The other control group is a no-treatment, no-testing group created from those families who, for no reason under their control, had to drop out from one of the above three groups; in every case, the initial testing has been completed, and no further testing will be done with the family and child until the project is complete.

The groups are created by random assignment of mother-child dyads from the available disadvantaged families of the Ypsilanti school district. The groups are further subdivided by age of entry into the project. The youngsters are phased into the project at three, seven, and eleven months of age to provide information on the effect of entry age on program impact. The groups are also controlled for race and sex insofar as possible.

The next section of this report presents the results of the pilot study completed in the spring of 1968. This section is followed by a presentation of the direction curriculum development is taking at this point and a review of the project design.

PART 2

PILOT STUDY: RESULTS OF THE FIRST SIX MONTHS OF THE PROJECT

In order to develop explicit techniques, the first six-month period of the Infant Education Project was devoted to a pilot study. During this time the focus of the project was upon the organization of the home teaching program, the data collection procedures, and staff orientation. A pilot group of families was

selected to serve as a trial group or "wave" throughout the period of the experiment. Some data collection was done with the group to obtain initial indication of programming impact.

Sample. The sample for this study was drawn from the available disadvantaged infants in the Ypsilanti Public School attendance district. These infants and their families were located through use of county birth records, school census data, and referrals from ongoing departmental projects. Both black and white families were included. The selection criterion was a low score on the cultural deprivation (CD) scale developed in the Perry Preschool occupation, parent education, and number of persons in the living unit. In addition to clearly disadvantaged families, two families were selected to represent the lower middle class. Table 1 gives a brief description of the sample families selected for the pilot "wave." The actual period of visits was concentrated in three months (March, April and May 1968).

Table 1

Family Information

Name	Age of Mother	Education	No. of Children	No. of People	Birth Date	Sex	ADC	CD	No. of Visits
R.A.	24	8	2	5	11-20-67	M	x	7.6	9
T.C.[a]	30	11	5	3	4-12-67	F	x	10.8	6
O.J.[b]	30	11	5	7	3-1-67	F		8.93	5
M.G.	29	14	5	7	12-4-67	M		12.5	6
T.M.[c]	24	12	2	4	11-29-67	M	x	11.5	4
L.W.	33	12	4	6	11-7-67	F		15.9	7
I.K.	21	8	3	6	9-1167	F		7.8	8

a. T.C. - only two children currently in home, father absent.

b. O.J. had complications in pregnancy with next child and was very ill. No visits were made after May 17, 1968.

c. T.M.'s child was ill almost every other week, severely limiting visits.

In addition to the families listed in the table, several others were initially involved. Two families who started with the project went South during spring vacation and failed to return to Ypsilanti at the end of the vacation period. One of these families has now returned and will be included in the pilot sample again. Two other families were served in the pilot group but are not included, since they were members of a pre-pilot study group and had had several months of home teaching before the testing. The curriculum developed during the pilot study for use with these families is presented in Part 3.

Two types of information from the project are presented in the following pages. The first is qualitative information concerning the impact of the program on a single family, and a case study approach is employed. The second type of information is quantitative data collected through use of the Bayley Infant Scales of Development. While more extensive data were collected, they were primarily helpful in decisions involving instrument development and teaching strategies and are not presented at this time.

QUALITATIVE DATA

The project staff found that most mothers of the infants could be placed in one of four categories evolved as a result of past home teaching programs (Weikart and Lambie, 1968). These four types require somewhat different teaching patterns and definitely provide a range of home teaching conditions. 1) A few mothers have a good understanding, usually intuitive, of their children's needs and have already established a growth encouraging relationship. These mothers receive extensive teacher support in what they are doing. 2) Most of the mothers want to do what is best for their infants but they do not know how to go about it. These mothers receive specific consultation from the teacher including ideas, demonstrations, and information. 3) Some mothers are not involved with their infants and see their children as "slow" or different in some way. A mother from this group demands to know what is wrong; then, if the problem can't be easily solved, she prefers to ignore the child. 4) Some mothers seem to provide detrimental assistance to their children, as everything they do with the baby seems to go wrong. These mothers react to these difficulties by becoming punitive, treating the infant with detachment, or showing overwhelming concern. These last two groups of mothers need considerable assistance in developing an equilibrium in child rearing. The teacher constructs, through carefully related educational activities, a responsive relationship between mother and child. She supports the vital interest the mother has in the child by helping her achieve success in some activity with the baby.

In order to illustrate the home teaching conditions and the methods which the staff employed to work with parents and infants, a case study of one family is presented in detail. While the family is somewhat atypical in that the mother represents category four (provides detrimental assistance), the teacher's report does indicate the range of problems a home teacher must face. It also outlines how a cognitive curriculum may operate within a framework of family dynamics with which it is very difficult to contend.

FAMILY CASE HISTORY: T.C.

1. General Description

A. Home Environment (Physical)

This family lives in four rooms plus a bathroom of a large run-down house which has been converted into several apartment units. The building is in very poor repair; the roof leaks, several windows are broken, and the whole house is infested with cockroaches. The landlord has been given a deadline by the city to complete repairs or the house will be condemned. A screenless front door opens onto a small hallway with a very strong musty odor. There are two apartments downstairs and one of the mothers living there takes care of five extra children on weekdays in addition to several of her own. An enclosed stairway leads to the second floor apartment where the project family lives. The main hallway of the apartment opens directly on this stairway. The door at the bottom of the stairs is usually kept bolted. The door to the stairway is not protected by a gate though T.C. is a toddler. The living room has an old and badly worn couch and chair, two T.V. sets only one of which works, two end tables with three children's banks, and a child's toy table with two chairs. There are pictures of the children on the walls and both end tables, a small radio, a large wooden toy chest, a walker, a jumper chair, and a baby swing. The wooden floor is usually clean but has no coverings. In one corner of the couch is a large memento pillow which designates the mother's side of the couch. No one else is allowed to sit on this end of the couch. The furniture in the room is rearranged at least once a week. The children's bedroom has a crib, a single bed, and dresser. One of the window panes in the dimly lighted room is very dirty and smelly. The mother's room has more light but a large crack in the ceiling lets in huge quantities of water whenever it rains. A small child's wading pool catches the water on these occasions. The room has a large bed and dresser. The teacher has never seen the kitchen or the bathroom. Access to the attic for the whole house is off

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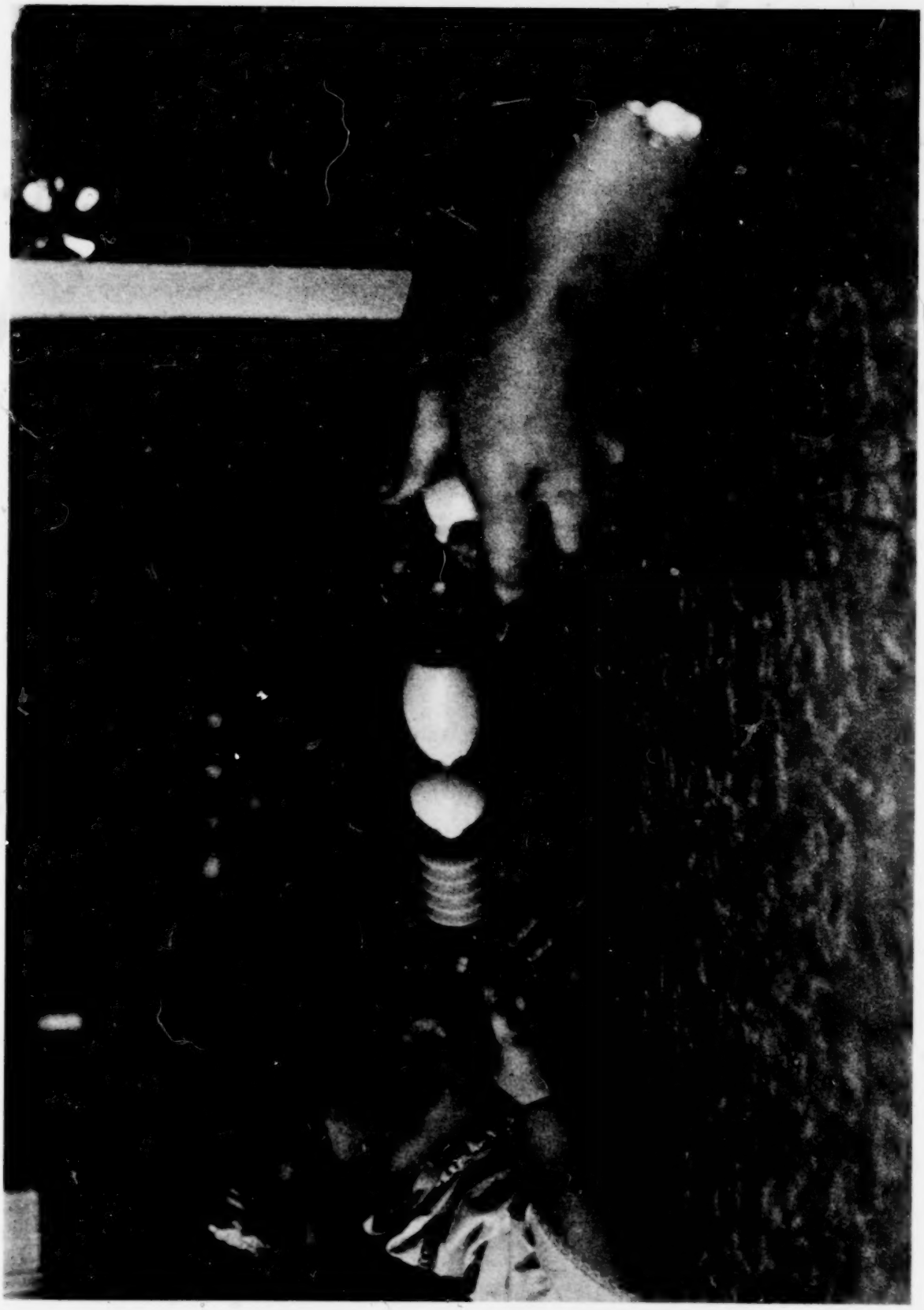
the apartment's upstairs hallway and there is often a ladder there with several people going up and down. The radio and the television are usually both going at the same time.

B. Family Members and Others

The family unit consists of the mother and two of her six daughters (half-sisters). The mother has recently divorced her husband although they still maintain a dating relationship. He gives her money for the children occasionally (on birthdays and holidays). This mother had three illegitimate children before she married, two by her husband and one illegitimate child since the divorce. The youngest legitimate child was taken away from her for child abuse and is presently in a foster home, as are the three older children. The children currently in the home are the five-year-old who just completed kindergarten and the illegitimate fourteen-month-old who is the mother's sixth child. The mother is 31 years old and has an eleventh grade education. She reports herself to have been a poor student. She is from a family of seven children and describes herself as the rejected child especially after having her first three children out of wedlock. She receives ADC. This mother has long blond hair and is very heavyset. She has an old boyfriend's name tatooed on her arm and writes her current boyfriend's name on her other wrist with a marking pen. She seems to have an active social life.

C. Teaching Conditions

The teaching sessions were always held in the living room. During the first several visits no teaching of the baby was attempted as the mother was extremely defensive and seemed to be "feeling the teacher out." The baby was sleeping and the teacher was invited to talk until she woke up, which did not happen during the first two sessions. At the first actual session with the baby, the mother's boyfriend was present and participated more than the mother, somehow relaxing the tension. The next session, the mother joined in and told the teacher that she had been on trial and that the mother had decided that the teacher could stay. The teaching sessions usually lasted at least an hour, thirty minutes of which was directed to the baby. These thirty minutes were spread out in short periods of concentration on the baby, sandwiched between a flow of mother-centered conversation. The teacher had to keep returning the mother to the teaching task or relating the mother's conversation to the task. Occasionally friends of the mother or the landlord sat in on the



sessions. The lessons were conducted on the couch with the baby between teacher and mother.

II. History of Teacher's Relationship with Family

A. Mother

This mother comes across as a very dominating, independent woman completely uninhibited about revealing her problems and personal exploits. She is boastful and yet at the same time seems to have tremendous feelings of inadequacy. She constantly refers to herself as an "abusive" mother and yet has established a strong line of defenses to refute that accusation. On the surface, the first contacts with this mother were characterized by very casual, friendly, accepting exchanges. The teacher was given indirect messages, however, that any implied challenge to the mother's "mothering ability" would completely jeopardize any continuation of the program in this home. It was also apparent that any interaction with the baby would be mother-directed and controlled in equal if not "more-equal" partnership with the teacher. As a result the lessons took on the flavor of a mini-battlefield with each side trying to rattle a sabre and yet continue to maintain a relationship. The teacher became an information seeker and clarifier in an attempt to steer the conversation and return the focus to the baby. Eventually the teacher reinforced particular interactions between the mother and child and occasionally modified some of the mother's inappropriate teasing behaviors that were particularly detrimental to the child. Despite the difficulties of teaching interaction, both the teacher and mother seem to like each other and feel very comfortable together. Mother says she feels the teacher is like a "girlfriend."

Some differences between the mother's and teacher's point of view have been bluntly particularized through statements by the teacher: "We have different ideas about that." The mother accepts this type of interaction if not yet accepting the ideas transmitted. She is very interested in continuing home teaching, saying that she has a lot more fun than the baby. The teacher is not quite convinced but the mother is obviously gaining some satisfactions that mitigate the personal threat and meet her need to influence her baby's achievement.

B. Child

The mother encourages independence and competition between both children and herself. The baby was eleven and a half months old when

this family was first contacted. Her test behavior was very spotty and she had a very short attention span. She did not carry many of the activities to completion; for example, she would grasp objects but wouldn't imitate. Instead she would impose her own schemata - shaking, mouthing, and rocking - soon after each new activity was introduced. She seemed to spend nearly all of her waking time in the jumper chair. She was observed to do a great deal of rocking and had nearly worn out her second jumper chair. This rocking was accompanied by a lot of vacalizing but both behaviors could be interrupted when she was given a lot of direct attention. She was very responsive to social situations.

The child shows some stubbornness and independence. At the same time she is often very clinging when given an opportunity to hug mother or teacher. She often will come to the teacher for attention when the mother scorns her advances. She has abandoned all the rocking behavior and is very interested and persistent in object play.

III. Mother's Teaching Interaction with Child

A. Awareness of Development

This mother seems to have some appropriate expectations for motor development for her baby. However, her general expectation of independence is extended to many more areas than baby is ready to handle. For example, the child is expected to take a bath by herself, to win her own toys back from her older sister, and to stop crying on command, all at 11 1/2 months of age. Mother feels that independence is important to prevent a child from becoming spoiled. This mother also watches "The Children's Doctor," a T.V. program that gives health and growth stages for children, and attempts to apply this knowledge to the baby.

B. Support of Child's Growth

The mother does not see herself in a supportive role to her child's growth. Her interactions are directive and thus, she believes, prevent undesirable behavior. Sometimes mother's own needs are put ahead of those of the baby. On one occasion one of teacher's often-made points became obvious: Baby worked longer and better when she received a reward and was not teased. Mother noticed this and said that she guessed teacher was right about reward but she liked to tease her baby anyway. Once when the project supervisor was visiting a teaching

session, the mother tried forcing the child to walk, but the infant's legs kept buckling under. Then this mother half-teasingly started kicking the child, as if the child were purposely not trying to walk to displease her. The supervisor offered an alternative reason for the child's failure by commenting that babies who have been supported in a jumper chair for a while sometimes have difficulty in supporting themselves, in getting their feet under them immediately. The mother became very defensive and the subject was dropped. The next week, however, she reported that the baby was no longer using the jumper chair.

The mother has attempted to provide materials similar to those brought into the home by the teacher. She has bought standard materials and attempted to make a picture book for the baby. During the teaching sessions, the mother lets the child explore new materials freely and in teaching allows the child to move at her own pace. She also picks up and extends new approaches the baby may make to a specific activity. When the baby, who had been putting blocks through a hole in a can, suddenly began to pass blocks to her mother, the mother quickly started to play "Give it to . . ." This behavior by the mother may not be typical outside the teaching session as yet.

C. Description of Mother's Behavior

1. Language

This is a very talkative mother. She does a great deal of talking to the baby. Most of this is appropriate and specific to the situation: "Here is your teacher," or "Get that dog." The mother also usually responds to all vocalizations of the baby when the mother is focusing her attention on her and not engaging the teacher in conversation. She usually repeats what the child said or what she thinks she said. When in conversation with the teacher, she wants the baby to be quiet and not make any noise at all, however. Most of her language to the child consists of restrictive imperatives, such as "Put that in there," but during teaching she often is quite expansive.

The area of language has not been a focus of the teaching plan to date although the mother has been encouraged to participate and to direct many language oriented activities toward the baby.

2. Teaching Style

The mother has some very nice interactions with the baby as long as the baby is cooperative. When the baby begins to be less responsive, the mother becomes very negative and resorts to threats and physical punishment. Another problem area is that of rewards. At the beginning of the project, the mother was very interested in getting the baby to walk. She held out a toy and encouraged the baby to come and get it. The baby took three very halting steps and reached for the toy. The mother immediately changed the toy to the other hand and again invited the baby to get it. She reached again. This was repeated two or three more times until the baby gave up, sat down in the middle of the floor and started to cry. The mother then gave her a cookie to stop her crying. The teacher commented on the obvious distress of the baby, but at that point direct confrontation was not advisable. In several less tense situations the teacher pointed out how the child was continuing to pursue a task when she was getting a lot of positive reinforcement. The teasing behavior by the mother began to drop out completely during the teaching sessions. It appeared again during a video-taping toward the end of the sessions. In viewing the tape, teacher again commented that the baby gave up and didn't seem to like teasing. Mother agreed that the teacher was right about that, but said that she, the mother, still liked it. At least the impact was made, but one can't be sure how changed the mother was. She has begun to consistently reward in other situations, however.

Another difficult problem is to get the mother to help the baby make a transition from one activity to another. When the teacher gave any indication that it was time to change activities, the mother would snatch the toy away from the baby. The child would often come close to tears. It was necessary to find a way to help the mother make a transition from one activity to the next. The mother was told, "Let's try . . . . now. Why don't you see if T.C. will trade this toy for the one she has. Maybe that will be a way to get that toy away without upsetting her." This suggestion was only necessary once. No more snatching behavior has been observed in the teaching sessions.

This mother is sometimes irritated by some of the problem-solving behaviors that the child shows and responds very aggressively. The baby was putting wooden blocks in the can and was having a hard time getting one in. She finally tried to throw it in and by accident it missed and stung the mother; the mother yelled and threw the block at the baby.

Whereupon the baby got ready to throw another one at the mother. Teacher stepped in and got baby to throw her block in the can. This type of mollification is sometimes necessary to keep the child from punishment and to demonstrate a more neutral response to the mother although the original teaching goal may have been specifically for the child. Such interaction seems to be very helpful and the mother usually carries over these techniques to very similar situations. It seems that often the mother welcomes more effective ways of maintaining the child's cooperation.

3. Control Techniques

This mother uses several control techniques. Threats and warnings are usually her first response to any misbehavior. Sometimes these are not followed up. Sometimes she uses both a threat and a promise of a reward: "If you stop it, I'll give you a cookie; if you don't, you'll get a slap." She sometimes does both no matter what the child does. Other times she slaps her playfully and says, "I was kidding about the cookie." This mother takes things away for discipline purposes but she also takes things away to teach the baby to stand up for herself. These controls usually disturb the baby and she cries and gets very upset. Then the mother gives her something to stop the crying or spanks her and puts her in her crib. The choice of which treatment she uses seems to depend on the mother's mood at the moment.

The mother seems to control only those things the baby does which interrupt or somehow personally affect her. She does not control, in particular, things necessary for the baby's safety, her play activity, or her fighting with the older sister, unless they become personally irritating to her. There is, therefore, a great deal of inconsistency in the general extent to which the mother exerts controls as well as in the type of controls used.

The teacher has begun work in this area by trying to clarify with the mother what her exact position is on controlling certain things in the hope that in crystallizing what it is she believes important, she may at least then handle that behavior consistently. The teacher reinforces the mother's position whenever she can agree with her in order to lend further support to the mother in establishing a consistent approach.

The teacher also tries to point out when the mother's expectations seem too high with the hope that this will help to clarify whether things the child does are really misbehavior or whether they are simply too hard for her to do. For example, the mother was very anxious for the baby to take a bath by herself, but everytime the mother left the room, the baby would start screaming and crying. The mother tried closing the door and letting her fuss and then she tried spanking her. When this problem was brought up in the teaching session, the teacher suggested that maybe the baby wasn't just misbehaving but was afraid to be by herself, and that most babies of 12 months really aren't quite ready to take a bath alone even if they can do many other things for themselves. The mother accepted this and later told the teacher that she guessed she would not try to force the baby to take a bath alone anymore since maybe she wasn't quite ready.

Although teacher and mother have begun to discuss this area of control more directly and the mother has exhibited some agreement with the teacher, only a small beginning has been made and much more needs to be done. Hopefully some successful control techniques can be demonstrated during teaching which the mother will be able to carry over to her later interactions with the child.

IV. Developmental Steps in Child's Educational Growth

A. Language

When this baby was first seen she was doing a lot of babbling accompanied by rocking. She was very socially responsive and would vocalize to people when they came to her. She did not seem very responsive to verbal commands or extraneous sounds.

All of the activities in the cognitive area were accompanied by specific language referents. Some attempt was made to include activities with familiar commands: "Put it in . . ." "Give it to . . ." "Show me . . ." As the mother was very responsive to all of the expressive language of the baby, the baby seemed to be very imitative. More structured language-imitative activities were then included. Some pictures were found of familiar objects which the baby began to name in imitation of mother. She would also imitate various words yelled into a can or on a toy telephone. The baby seems to imitate very well at this point but her understanding of words seems poor. She does not discriminate her mother's name from that of her sister or teacher, although she says "mama" meaningfully when distressed. She continues to do a lot of babbling during play.

B. Cognitive

Early in the family contacts the baby seemed very friendly but was exhibiting an excessive amount of rocking. When given a task she would then show some goal-directed behavior but would not carry most tasks to completion; rather she would use the object in her own way, usually mouthing or banging it. She had an easy play style but short interest in any particular activity. Her performance on the Bayley Scales in the cognitive area was spotty and she would not release objects but tended to hoard the toys.

The program for the baby included the following types of cognitive activities with accompanying language:

a) Release Activities
   1) Passing objects around
   2) "Give it to"
   3) Putting blocks in a can
   4) Trading toys
   5) Putting shapes through appropriate slots in can
   6) Pulling pop-beads apart and putting in can

b) Activities for imitation
   1) Block banging
   2) Peek-a-boo
   3) Picture naming
   4) Mirror play

c) Object permanence
   1) Finding toy behind a screen
   2) String-operated jack-in-the-box
   3) Finding toy given more than one screen

d) Stacking activities
   1) Nesting small cups
   2) Nesting measuring cup with handles
   3) Stacking blocks
   4) Nesting cans
   5) Stacking cans
   6) Stacking graduated rings

The release activities were especially difficult for the baby although she seemed to enjoy them most. She would hoard the objects or refuse to participate. She seemed to fear that she wouldn't get the toy back if she

gave it up. This real fear had been reinforced by some of the mother's behavior. Concentrated effort by both mother and teacher to reward any release eventually helped her to successfully accomplish these tasks although she still is reluctant to give or trade a favorite or new toy.

The imitation activities were the most successful. She worked especially well with mother on these activities although the play was very aggressive by both. She seemed ready to extend her skills to more meaningful levels of imitative play.

Her object permanence skills have increased to the level of finding an object under one screen. When given more than one screen she returns to the position where the toy was found last, and then cries if it is not there.

Her skills in the stacking-nesting area were very poor. She was unable to nest anything and could only stack two blocks. She would not persist in these activities when met with the slightest frustration.

C. Motor

From the start, the baby seemed to have good muscle tone and adequate coordination of both fine and gross muscles. She could walk with help but would not walk alone. Her mother was very eager for her to walk and was spending about 45 minutes each night trying to get her to walk. The baby would take two steps to get something but mother would start the teasing and then the baby would stop and cry. Another problem was that the baby spent most waking hours in the walker and seemed to have little time by herself to explore. After a visit from the project supervisor where the use of walkers in general was mentioned, the mother began to let her out more. She is now walking very well but cannot get up without something to pull up on. Her general motor development is age appropriate.

V. Evaluation

In general the baby has made many improvements. Her attention span is much longer, and when encouraged, she will pursue a task to completion. She still needs a great deal of work in the cognitive area to bring her up to a level consistent with her motor and language skills. No rocking is observed.

The mother has also demonstrated that the teaching program has had some impact on her. A beginning has been made in changing her reward behavior as well as giving her some positive experiences with the baby. She shows potential for more change. Her teaching methods, which have received the major thrust of teacher's work with her, have improved significantly, at least during the teaching sessions. The mother has also experienced many successful interactions with her child, which did not seem to be a well-established pattern at the beginning of this program. Thus a small start has been made in mitigating some of her rejection of this child. This problem of rejection has been discussed quite openly. The mother brought it up herself in discussing her own mother's treatment of her and she admitted that sometimes she couldn't stand to be around her kids either. Teacher reassured her that most mothers have times when their children seem to be a burden, but went on to discuss some ways other mothers handle kids at these times. It was also pointed out that kids can pick up these feelings very easily and it can influence how they behave.

Only a beginning has been made. This mother has some deep-seated problems that are beyond the scope of this program but there is some evidence that some of the guilt she feels about her other children can be channeled into a more appropriate effort to do well with the baby. This mother is beginning to find some real satisfactions. Much work still needs to be done in the area of the mother's methods teaching to attempt to cut down the amount of negative reinforcement and to help the mother find new ways of expressing her pleasure with the child, which at this point comes across in a negative manner.

VI. Overview

One of the major difficulties faced by the teacher was the slow pace of the program for this family. Very limited, carefully planned goals had to be established. This seemed necessary for the stability of the teaching program, because there were so many problems that any large-scale approach would have discouraged the teacher and overwhelmed the mother. It would seem practical to continue with the present teaching program concentrating on one small aspect of behavior at a time in several different activities. It also would be helpful to continue to have the mother participate in preparing materials that she chooses. This seems to give her something positive to do during the week on her own. She is very open to such suggestions.

Another problem was how to work the baby into the mother's framework. The mother seemed to feel the teacher was someone for her and work with the baby was incidental. It did not seem advisable to challenge this mother but rather to try to fit the program into her framework. The idea of limited challenge seemed to be effective. It was very difficult for the teacher to reach a comfortable feeling of security in the home such that she could take a stand on some of the differences between herself and the mother. To say the least, this mother was very intimidating at first. It did seem necessary for the teacher to take the responsibility of maintaining the tentative relationship between herself and the mother. This idea of limited challenge seemed to establish a frankness on the part of both the teacher and the mother which was acceptable to both. The result was that a rather strong and comfortable relationship was established between the teacher and mother. This was necessary in order to begin to establish a common investment in the child, which is yet to come. Until this investment is made, hometeaching will not have fulfilled its potential.

QUANTITATIVE DATA

In addition to the general qualitative information on individual families, systematic data were collected employing the Bayley Infant Scales of Development. These scales were chosen to evaluate the general progress of the infants in the pilot study. However, since the scales were in the pre-publication stage, a scoring manual was not available to the project and only individual basal and ceiling age-scores could be calculated directly. These are presented in Table 2.

This method of analyzing the data, however, is unsatisfactory as it neglects the patterns of passes in the pass-fail scatter which occur between the basal and ceiling scores. This neglect is a serious weakness since in the nine weeks of program intervention much of the relative effect might be manifested in the pass-fail pattern.

In the absence of a published scoring procedure, an arbitrary method of calculating a single age-placement score for each individual was developed. This method attempted to take into account both the basal level of the subject and his pass-fail scatter in a manner somewhat analogous to that utilized in the Stanford-Binet. The test was divided into six-month intervals and the total number of possible passes in each of the intervals was calculated. This total was then divided into the six-month time span in order to arrive at the equal fractional month-weights assigned to each item in the interval. Table 3 presents the possible number of passes and the weights assigned to these passes for each of the respective intervals in both the mental and the motor sub-tests.

Table 2

BASAL AND CEILING AGE-SCORES (in months)
ON BAYLEY INFANT SCALES OF DEVELOPMENT

Name	PRE-TEST			POST-TEST		
	Chron. Age	Basal Age	Ceiling Age	Chron. Age	Basal Age	Ceiling Age
			Mental			
R.A.	4.30	3.40	4.60	6.67	7.00	9.30
T.C.	11.60	9.50	12.70	13.90	12.70	16.80
O.J.	12.90	10.90	13.50	15.33	14.20	19.00
M.G.	3.93	3.80	4.80	6.20	5.80	8.40
T.M.	4.00	3.90	5.20	6.27	5.80	7.60
L.W.	4.73	3.80	4.80	7.00	6.50	9.30
I.K.	6.57	6.90	7.00	9.00	7.60	9.60
			Motor			
R.A.	4.30	2.90	5.30	6.67	6.90	7.60
T.C.	11.60	11.30	11.80	13.90	14.20	16.80
O.J.	12.90	12.50	13.00	15.33	13.50	14.20
M.G.	3.93	3.90	4.00	6.20	5.90	7.20
T.M.	4.00	3.90	5.10	6.27	5.80	8.20
L.W.	4.73	2.90	5.20	7.00	6.00	6.90
I.K.	6.57	6.00	7.60	9.00	9.20	11.30

Table 3

WEIGHTS FOR POSSIBLE PASSES
AT SIX-MONTH TIME INTERVALS

Time Interval in Months	Mental		Motor	
	Number of Possible Passes	Weight	Number of Possible Passes	Weight
0.0 to 5.9	70	.09	26	.23
6.0 to 11.9	29	.21	20	.30
12.0 to 17.9	24	.25	8	.75
18.0 to 23.9	19	.32	2	3.00

The individual age-placement scores which resulted from this scoring method are presented separately for the mental and motor sub-tests in Tables 4 and 5.

A consistent trend is observable in the pre- to post-test progress shown by these infants. While in both the mental and the motor sub-tests five of the seven infants performed at a level below that which might be expected from their chronological age at the pre-test, at the post-test five of the seven (not the same five) performed at a level equal to or above that which might be expected from their chronological age. In addition, for both sub-tests, six of the seven infants improved relative to their chronological ages during the period of intervention.

The mean differences between chronological age and test age and the results of t-tests of these sample means against expected means of zero are presented in Table 6.

After intervention, the infants' performance on the mental sub-test was significantly ($p < .05$) above the level which might be expected on the basis of their chronological age, even though they performed, on the average, below (though not significantly below) their respective level before initiation of the project. On the motor sub-test, the results are not as clear. At the end of the project the sample was performing at a level essentially equal to that expected on the basis of their chronological age even though again they were below that level (though not significantly so) at the time of the pre-test.

Table 4

PRE- AND POST-TEST MENTAL AGE-PLACEMENT SCORES

Name	Age at Pre-test	Pre-test Age Score	Diff.	Age at Post-test	Post-test Age Score	Diff.
R.A.	4.30	4.20	-.09	6.67	7.63	.96
T.C.	11. 60	11. 26	-.34	13. 90	13.95	.05
O.J.	12.90	11. 92	-.98	15.33	15.27	-.06
M.G.	3.93	4.16	.23	6.20	7.27	1. 07
T.M.	4.00	3.98	-.02	6.27	7.27	1.00
L.W.	4.73	4.16	-.57	7.00	7.76	.76
I.K.	6.57	6.90	.33	9.00	8.02	-.98

Table 5

PRE- AND POST-TEST MOTOR AGE-PLACEMENT SCORES

Name	Age at Pre-test	Pre-test Age Score	Diff.	Age at Post-test	Post-test Age Score	Diff.
R.A.	4.30	3.59	-.71	6.67	7.50	.83
T.C.	11. 60	11.30	-.30	13.90	14.20	.30
O.J.	12.90	12.50	-.40	15.33	13.50	-1 .83
M.G.	3.93	3.90	-.03	6.20	6.20	.00
T.M.	4.00	4.59	.59	6.27	7.00	.73
L.W.	4.73	3.59	-1.14	7.00	6.42	-.58
I.K.	6.57	6.60	.03	9.00	9.50	.50

Table 6

T-TESTS OF THE MEAN DIFFERENCES BETWEEN CHRONOLOGICAL AND TEST AGE AGAINST AN EXPECTED MEAN DIFFERENCE OF ZERO FOR BOTH THE MENTAL AND MOTOR SUB-TESTS

Pre-test				Post-test			
M Chron. Age	M Test Age	M Diff.	t-test	M Chron. Age	M Test Age	M Diff.	t-test
Mental							
6.86	6.65	-.21	1.23 (n.s.)	9.20	9.60	.40	1.951 ($p < .05$)
Motor							
6.86	6.58	-.28	1.346(n.s.)	9.20	9.19	-.01	.020 (n.s.)

This approach to the data may, however, be too conservative in that it uses the performance of the "average" child as the expected performance for these children. (In the standardization of the Bayley, each item was placed at its respective level according to the age of the group of children among whom 50% could pass the item.) On the basis of evidence presented by Wachs, Uzgiris and Hunt (1967) that differences in measured intelligence between the "deprived and non-deprived child . . . appear as early as 11 months" and perhaps even earlier, performance at a level equal to that which is expected from chronological age may indeed reflect marked progress for this population.

As a less conservative alternate, the fairly standard procedure of expressing expected gain during the program as a function of the ratio of test age to chronological age was followed. The mean expected gain was used as the expected mean in a t-test of the difference between correlated samples. Table 7 contains the expected and actual gains calculated for each child, the mean expected gain, the mean actual gain and results of the t-test for both the mental and motor sub-tests.

The Ss gained significantly ($p < .05$) more than expected in the mental subtest during the period of intervention and also gained considerably (but not significantly) more than expected in the motor sub-test during the period of intervention.

Table 7

T-TESTS OF THE DIFFERENCES BETWEEN CORRELATED MEANS FOR BOTH THE MENTAL AND MOTOR SUB-TESTS

Name	Test Age/ Chron. Age	Expected Gain	Actual Gain	t
		Mental		
R.A.	.979	2.32	3.42	
T.C.	.971	2.23	2.69	
O.J.	.924	2.25	3.35	
M.G.	1.058	2.40	3.11	
T.M.	.995	2.26	3.29	
L.W.	.879	1.99	3.60	
I.K.	1.050	2.55	1.12	
MEAN	.979	2.29	2.94	2.03 ($p < .05$)
		Motor		
R.A.	.835	1.98	3.91	
T.C.	.974	2.24	2.90	
O.J.	.969	2.35	1.00	
M.G.	.992	2.25	2.30	
T.M.	1.147	2.60	2.41	
L.W.	.759	1.72	2.83	
I.K.	1.005	2.44	2.90	
MEAN	.954	2.23	2.61	1.15 (n.s.)

These data from the pilot sample are suggestive of the potential impact of the Infant Education project. Certainly there is every reason to believe that home teaching as a method of altering the growth pattern of disadvantaged infants is worth an intensive trial.

Part 3

CURRICULUM

While curriculum normally refers only to a course of study, in this project the term is used as an umbrella to include the entire process of home teaching interaction. Specifically, it includes both the development of the mother's ability to control and teach her child and the actual teaching agenda or activities carried out in the home with the mother-child dyad. What is done in the home is limited only by the relationship that can be established between the mother and teacher. As discussed in the case study, T. C.'s mother watched a T. V. series regarding child care and yet she was totally unable to apply the knowledge obtained. It is the carefully paced and carefully focused mother-teacher relationship that allows for the gradual improvement in the child's total environment. To be successful, the teacher must be aware of the dynamics in the home. With this knowledge the teacher can provide an individualized program of sequenced activities for support of the infant's growth and for encouraging the mother's interest as an effective participant in the child's learning process. After the dynamics of working in the home is discussed, this section will present information on the development of the teacher's role, individual programming, teaching style and control techniques, teaching agenda and teacher planning.

DYNAMICS OF WORKING IN THE HOME

Teachers working in the homes of disadvantaged families must accept a role different from that assumed when working in traditional classroom or clinical settings. Professionally, teachers are trained to work with groups that are basically captive audiences making the sacrifice and effort to be present and assuming low "power" positions, i.e., sitting at desks, answering roll calls, performing to teacher expectations, etc. In addition, classroom teachers seldom have their performance judged in any immediate way other than being "liked or disliked" by their students. Only occasionally is long term achievement by students introduced as a possible consideration of teaching effectiveness. Home teaching, on the other hand, demands a very different performance on the part of the teacher. Acceptance of a position of low power, immediate critical evaluation of teaching, and adjustment to economic and social differences are all required of the teachers.

The teacher is a guest in the home of a mother. As a guest, the teacher must sit where told to sit and put up with many inconveniences, e.g., dirt, bugs, disease, poor heating, lack of work space, lack of access to teaching supplies, assorted visitors viewing the teaching, summary dismissal by the mother,

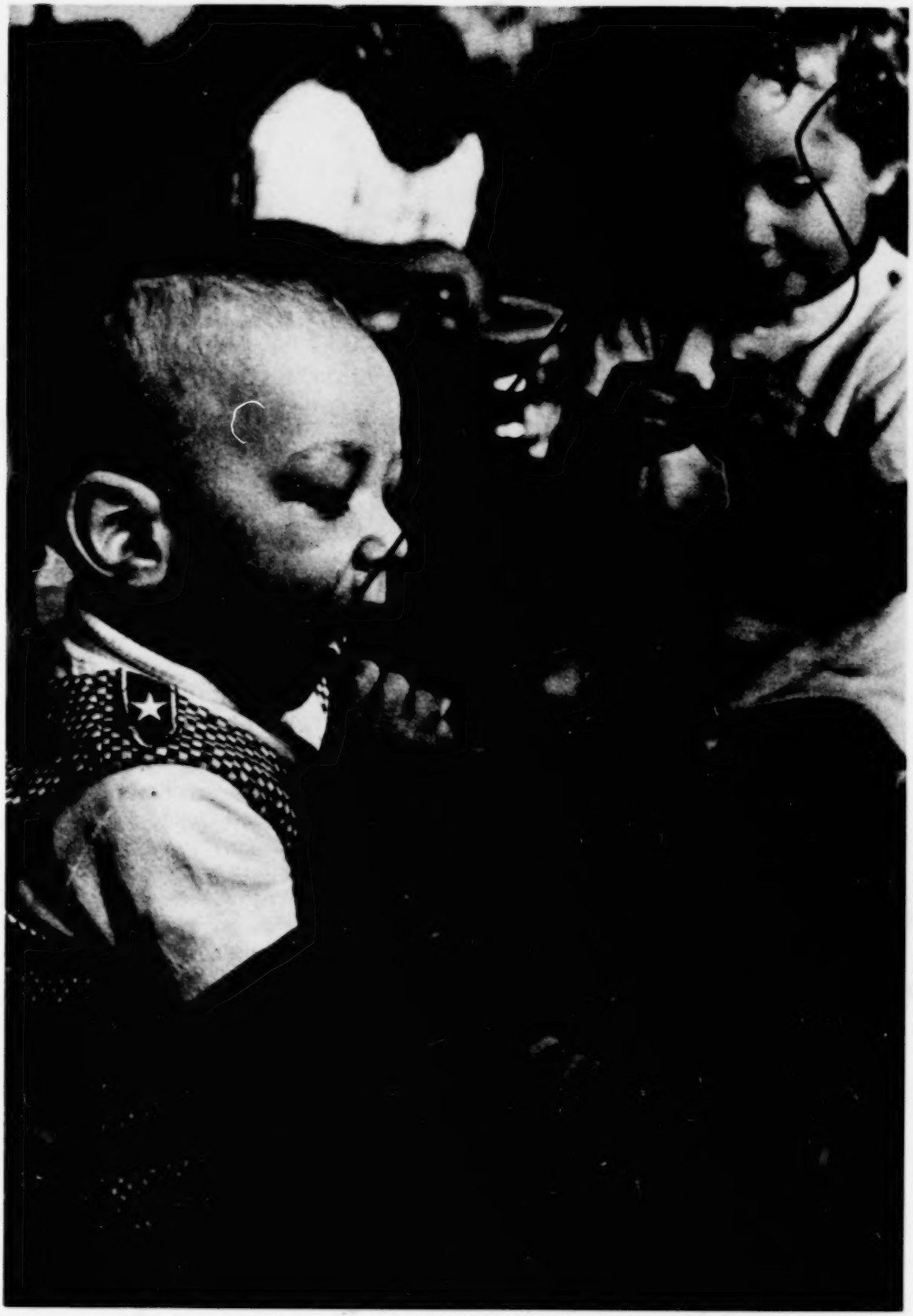
cancellations of appointments by the mother, etc. In all of this the teacher basically assumes a position of low power.

In addition, the mother does an immediate evaluation of the teacher's performance during the working session. In the classroom the teacher is seldom judged in areas other than discipline and classroom management. In the home, trial and error teaching is not well received and negative reaction is immediate to teaching failure. The teacher must demonstrate that she can tap the child's ability, handle teaching situations correctly, and explain why something did or didn't work. If she fails in any of these categories, she seldom receives a second chance unless the mother is convinced of the teacher's expertise.

Even though the teacher focuses primarily on education of the child, knowledge of and feeling for the economic situation of the family is important. For instance, a mother with limited income cannot purchase many toys for the children. The teacher must show the mother ways to use everyday household objects for toys (such as coffee cans, clothespins, cartons, etc.) or use examples of good, serviceable, inexpensive toys available at the local discount stores. On the other hand, families who have money to spend must be helped to understand that many expensive toys that whirl and twirl neither maintain the child's interest nor aid his development as much as simpler toys, such as blocks, with which the child can perform innumerable manipulations.

It is essential that teachers not make moral judgements, show surprise, disgust, or rejection of many aspects of the social, cultural and moral make-up of the family which are poignantly apparent though the teachers do not try specifically to become aware of them. The teacher who focuses her interest on the child and on the mother as the child's teacher is more likely to reach the goals for improvement in the child and changes in the mother than one who is overly absorbed in such things as cleanliness and presence or absence of fathers. Since culturally different situations do occur, however, the teacher needs ideas on how to handle them as well as a few well chosen rules, such as: "Do not enter the house if a child answers the door. Ask the child to get his mother, then wait outside until she knows you are present."

The project staff believes the key element of concern is that the mother stimulate and support the infant's growth. This single and narrow focus makes her role as teacher palatable to the mother over the long period of contact. Only those things which have a direct bearing on the infant's participation in the teaching session are brought up with the mother. For example, if the baby has diaper rash and is fussy and cannot sit for the activities, the teacher might



mention using cornstarch and changing diapers frequently. If the rash is severe, the teacher would encourage the mother to keep her appointment at the well-baby clinic and to ask for suggestions from the doctor, or she would suggest the mother call the visiting nurse assigned to her for help in clearing up the rash. In any case, the teacher constantly reinforces for the mother that her narrow and only concern is the growth and intellectual development of the child with the mother acting as the child's teacher. (This position of only educational concern is possible in this Southeastern Michigan community because of the extensive agency service available to all families with need. Such a position is not feasible in centers operated by this department in Mississippi, for example.)

DEVELOPMENT OF THE TEACHER'S ROLE

The role of educational consultant to disadvantaged families is not a natural one. The teacher is not a typical part of the home environment and must work very hard to be accepted. It is the mother's home and she definitely establishes the structure, which includes what is acceptable to her and to the infant and the general working conditions in the home, and which is influenced by whether or not she is actively seeking help in raising her child or sees the teacher's presence as reflecting "how nice it is that schools are so interested in infants." The responsive teacher must adapt to the various roles assigned by different mothers. For instance, in one home the teaching session starts at the door. When the teacher enters she is greeted, toys are carried to the table by a preschool youngster, and mother starts talking about the changes she has observed in the infant during the past week. The teacher may be direct, demonstrate and suggest, and she may observe the family while the mother plays a favorite game with the child. In another home, the teacher and mother talk amiably for a few minutes about the baby while sitting in the living room. Then mother abruptly announces, "It is 1:30. Time to start." The trio then begin the business of the day at the kitchen table. The mother sees nothing before, after or between the activities with the child as related to the session.

As the teacher moves from "outsider" to "insider" with the family, the mother usually drops most pretenses (after about the third visit) such as assumed social mannerisms, carefully formulated language patterns, stiff rules (e.g., as to where each one sits in the room), and apologies for the condition of the room or the infant's appearance. She feels free to punish as she usually does, to

speak naturally, and eventually in many instances to begin to bring up topics related to folklore, such as the importance of consuming clay during pregnancy or the danger to physical development of cutting a child's hair. With some mothers, this kind of acceptance and exchange facilitates discussions about growth and development and stimulation activities. And it is rather unlikely that without these discussions, changes in attitudes toward child development will occur.

In essence, the creation of the teacher's role is determined by how the mother can accept the teacher and how the teacher can fulfill the objectives of the project after answering the question, "How do we work together?" We don't try to force mothers into the teacher's structure or concept of what is "the" most appropriate learning situation; rather the teacher determines how she can fit into the existing home structure and operate in a manner which gives support and impetus for change.

Teachers take a broad range of specific roles with individual mothers and may assume different roles at different times with the same mothers.

1. Reinforcer - Teacher supports everything good the mother does. This role is assumed with mothers who basically know what to do but are unsure of themselves.

2. Activity director - Teacher gives ideas to the mother who wants to do things with her baby but doesn't know what to do.

3. Director - The teacher is seen as an authority by the mother. In this role the teacher is very direct and specific in stating the kinds of activities to be employed, and their purposes.

4. Casual friend - Teacher imparts and shares information about the child's growth, development, toys, and activities with mother in an incidental way.

5. Information seeker and giver - Teacher assumes the role of observer with the mother who feels very insecure about her relationship with her child. The teacher gets and gives information unobstrusively during "games with the baby" time.

Regardless of role, most mothers respond well if the teacher maintains good communication, explains what the activities are, what the child is doing or learning, and keeps the focus on the child rather than on the mother's performance as a parent.

INDIVIDUAL PROGRAMMING

The process of being an effective teacher includes specific activities for teacher, mother, and child which intensify home teaching. The essential condition of effective home teaching by the teachers can be stated as the development of a perception of the mother's and infant's behavior or stage of development followed by a choice of course of action to produce growth based on that perception. Because a successful program must be carefully individualized for each mother-child dyad, this definition was adopted to insure accurate and sympathetic teacher observation of the mother's behavior and the child's dvelopment. Then, since the main goal of home teaching is to enable each mother to become an effective teacher to her child, we are interested in influencing the mother in terms both of her perception of the child and of the information available to her for choice of action.

The perception of the infant becomes more valid and the choice of action more effective for both the teacher and the mother by: 1) observing the child's responses (not pass-fail) to structured test items (e.g., observing the administration of the Bayley); 2) sharing knowledge and information about the many developmental steps established as descriptive of growth in language, motor skills and cognition; and 3) observing the infant's reaction to activities sequenced to fit his particular pattern of development.

TEACHING STYLE AND CONTROL TECHNIQUES

Before it is possible or even advisable to alter a mother's teaching style, language patterns and control techniques, it is necessary to observe and examine the interaction between the mother and the child. Teachers must become aware of such factors as the mother's attitude toward the child's intellectual development, her understanding of the growth process, the way she reacts to the child's experimentation, alternatives known and used by her in language training, infant stimulation and behavior controls, and the mother's expectations for the child's performance. The teacher must also determine the impact or implications of these factors as the mother employ s them for the child's future responsiveness.

Because understanding these mother-child factors places a heavy burden on the teacher's observation at a time when she is struggling to develop rapport in the home and define activities that are developmentally appropriate to the child, the Ypsilanti Picture Sorting Inventory (YPSI) was developed to facilitate and systematize the process. This instrument is a collection of 122 drawings of infants engaged in a variety of motor, cognitive and verbal activites. The pictures were

designed primarily to obtain diagnostic information for teachers on the mother's perception of child development in general and her observations of and expectations for her own child's development. This goal is achieved by presenting each picture individually to the mother and asking her to describe the pictured child's activity and to state whether or not she thinks her own child has ever engaged in that activity. When all of the pictures have been presented in this manner, those which the mother has stated do not picture activities of her child are again presented individually and the mother is asked whether or not she thinks her child "will be doing this" in four months.

In addition to immediate diagnostic information, many YPSI items provide a direct measure of the accuracy of the mother's observations. The test also taps how realistic her expectations are for her child. This information is obtained by comparison of the mother's answers on certain of the YPSI items (designed to portray activities tested in the Bayley) with the child's actual Bayley performance both immediately and four months after the administration of the YPSI.

In many ways, the definitions by L.K. Moore (1967) of "responsive environment" and "autotelic activities" have been useful to teachers in deciding how to help a mother achieve a responsive relationship with her child and facilitate her child's growth. Responsive environment permits the learner free exploration, self pacing, full use of his capacity for discovering relations, possibilities for interconnected discoveries and immediate information about the consequences of his actions. (p. 340) Autotelic activity is engaging in something for its own sake rather than for obtaining rewards or avoiding punishments that have no inherent connection with the activity itself. (p. 341) These criteria are not used by teachers in the same manner as in the highly organized curriculum established at the Hamden Hall Laboratory, but they can be of direct help in developing the control techniques and teaching style of the mother.

1. Free exploration. Many mothers have control problems very early because they do not see the necessity of allowing the child to explore or experiment. For example, on one visit it was noticed that while the mother and teacher were talking, the infant kept reaching for objects which the mother quickly withdrew from his reach. When all objects were removed or hidden, the child became interested in a shiny metal ashtray the mother was using. As the infant tried to reach the ashtray from the right side of the chair, the mother moved it to the left side. After the infant (12 months) slowly worked his way to the left side of the chair, the mother moved it to the right side. This was repeated several times until the baby sat down and cried. The mother was annoyed and ready to spank him rather than provide some suitable object for play.

2. Self pacing. The interests and whims of infants dictate what will maintain their attention. As an infant has not yet learned to accept a learning situation which is not to his liking, he responds to such a situation by crying, fussing, refusing to participate or going to sleep. It is necessary to correctly read the concepts, schemas, and experiments in which the infant is involved in order to be able to choose activities that will match his interests.

3. Full use of capacity. This element and self pacing are highly dependent on the mother's level of expectation being within a reasonable range of the child's possible performance. It is not self pacing if the child is expected to walk at six months, nor can it be a full use of capacity if the mother would prefer to retard the child's walking by keeping him confined in a play pen until 20 months of age.

4. Autotelic activity. If external rewards for performing activities in the teaching session are overused, a child begins to continually look for approval of what he is doing, or to repeat a few rewarded behaviors rather than advance to new and more difficult activities. While external reinforcement is a useful technique for teachers and mothers to involve certain passive infants and curb overly active ones, careful programming will permit adequate matching of activities with the developmental level of the baby to encourage interest in the activity for its own sake.

In order to involve the mother in the primary relationship of education of her infant, the teacher employs a number of techniques. Some of these are illustrated next.

Techniques Employed by Teachers

A. To faciliate the mother's perception of her infant.
   1. Provide interpretations for behavior child is showing.
      a. Learning.
         "Oh, look, he's learned to dangle the beads."
         "He really seems to have learned to . . ."
      b. Controls.
         "Maybe he's tired of this game. Let's try . . ."
         "That noise seems to be much more interesting to him than this right now. We'll wait a minute and try again."

2. Point out effect of mother's action on baby by taking "talking" role for baby in indirect way.
   a. "She says, 'Oh, Mommy, that hurt.'"
   b. "He says, 'Oh, Mommy, that's very hard.'"
3. Call attention to transference of new skills or use of basic skill in a new way: "He's trying to dangle the hammer just like he does the beads."
4. Call attention to new skills or expectations by asking information from mother about:
   a. Behavior.
      "Has R. been dropping any of his toys on purpose yet?"
   b. Play.
      "What things did O. like to play with this week?"
   c. Comparisons with sibs.
      "What did his brother do when he was five months old?"
   d. Likes and dislikes.
      "Have you noticed if he is doing any . . . ?"
5. Make schemata checklist and ask mother to help watch for several specified behaviors in child given a series of toys during lesson.
   a. Discuss doing it together -- teacher check off list as mother observes.
   b. Have mother check off list as observer.
   c. Ask mother to do activities so teacher can be "free" to check off.

B. To encourage involvement of the mother.
1. Reinforce any comments or participation of mother by picking up on suggestions and modifying lesson to include interest of mother.
   Mother: "He's trying to pull himself up in his crib now."
   Teacher: "Oh, really? Let's see if he can pull himself up by using someone's fingers. Maybe he will do that better with you."
2. Elaborate idea of mother.
   Mother: "I don't know, maybe she's afraid of the water or she's just being stubborn."
   Teacher: "Well, most 12 month old babies would probably put up a fuss if left in the water alone. She's probably still a little too young. Maybe you could play with her or leave some sponges in the water to make bath time fun and then she may get some confidence.
3. Compliment mother on new insight.
   a. "That was a good idea. Do you mind if I pass it on to one of the other mothers?"
   b. Mother: "R. put his toys in a pail the other day."
      Teacher: "That really helps me in planning the lesson -- to know what he does during the week."

4. Ask the mother to do specific things during the lesson.
   a. "Maybe Mommy will play 'peek' with you."
   b. "Maybe he'll do this better for you."
   c. "Will you try this while I find something else in my bag?"
5. Suggest that mother work on special things during the week.
   a. "He seems to be almost ready to sit. Maybe you could give him some more practice time a few minutes a day this week."
   b. "You might try dropping a toy with him this week. He is beginning to get the idea."
6. Try to bring flow of general conversation back to child by relating some comment of mother to child's needs, etc.
   a. Mother discussing problems with welfare workers -- teacher brings discussion focus to people in authority positions in general by recounting some school experience. Then --
   b. Mother talking about her own school problems -- teacher talks about children's learning in general. Then --
   c. Mother talking about goals for own children -- teacher discusses important concepts involved in attaining goals.
7. Ask mother's opinion about a technique teacher has been using that is not very successful to see if mother can suggest an alteration that might improve activity.
   a. "She doesn't seem to like this very much. Maybe there's some other thing we can do with this."
   b. "Would you like to try something else with this? She doesn't seem to be responding to me."
   c. "Can you think of another way to get her interested in this? She just doesn't like this."
8. Include activities in lesson that need both teacher and mother involved.
   a. Rolling ball between baby and teacher -- mother helping baby.
   b. Playing "pass it around," etc.
9. Share decision making about course of lesson plan for next time by asking mother if she has a choice about what area to work on next.
   a. "Well, she's doing very well on these things, isn't she? Do you think we should continue with this or should we concentrate on some language games?"
   b. "Is there anything that you would particularly like for us to work on next time?"

C. To support skill improvement of the mother.
   1. Demonstrate more successful ways to control child when opportunity occurs in lesson.
      a. "Let's try . . ."
      b. "Maybe this would help."

2. Bring material or use some material present to distract "misbehaving" child and point out response to mother.
   a. "Maybe if we give him something more interesting, he'll cooperate again."
   b. "She (an older child) seems to mind better if we give her something specific to do while we play with the baby."
3. Explain or point out purpose of each activity to mother.
   a. "This will help him understand how to use things as tools."
   b. "This is important for good muscle development."
4. When mother is doing an activity with the baby, join in the activity briefly to introduce a new idea or expand mother's technique.
   a. Language: Mother telling baby to look in mirror saying, "Look, Jimmy!"
      Teacher joins in and says, "Touch the baby" or, "See the baby;" teacher withdraws when mother picks up expansion.
   b. Teaching: Mother trying to interest child in new toy. Teacher suggests, "Maybe she'll be more interested if you show her how it works first."
5. Join in activity to modify teaching style of mother that is unsuccessful or detrimental to child's learning.
6. Mother demanding that child give up toy to start a new game. Teacher suggests mother try to "trade" toys with baby before mother starts to snatch toy away.
7. Reinforce those teaching styles of the mother that seem to be most successful with child or that seem to be most conducive to learning.
   a. "It was a good idea to get her interested first."
   b. "You're right! It's good that you answer her when she talks even if you're not sure just exactly what she said."
   c. "I'll try your way with this toy. She really seems to like that kind of game."
8. Explain what behavior or response you want from the child in order to get mother to discriminate the successful from the unsuccessful performances of the child and to see how her own or teacher's approach can affect the quality of the child's performance.

TEACHING AGENDA: PROGRAM OF SEQUENCED ACTIVITIES FOR SUPPORTING THE INFANT'S GROWTH

In some ways the period of infancy is an easier time for teaching than the elementary school age, for the child is usually very curious and wants to investigate everything in as many ways as are known to him. Because of this, it is possible to provide a teaching environment as well as a responsive one. Five

criteria are employed for choosing a set of infant activities for use in the home teaching session. 1) They must be play oriented as the child must enjoy his involvement or he will not attend. 2) They must be novel enough to maintain the child's attention and length of time spent in the activities. 3) They must be variable, alternating "old favorites" with new and challenging toys or games. 4) They must strengthen the nucleus of schemas and concepts that the child already understands or provide the basis for new understanding. 5) They must be something in which the child can actively participate rather than something done to him or for his entertainment.

Because of the individualized curriculum for each mother-child dyad, what is important is not which activities a teacher might choose, but rather their relation to three critical areas of development: language, motoric skills and cognition. A compilation of suggested activities help the teachers create a teaching agenda which focuses on the dual goals of activities for mother and child and orientation to gross sequences in child development.

In the creation of a teaching agenda, the Piagetian developmental sequence, outlined by Uzgiris and Hunt (1967), provided a format for the gross organization of infant activities and became the "subject" areas in the traditional use of the word. As stated by Uzgiris (1967), "The notion of an orderly sequence does not necessarily imply that development is predetermined. It can be equally assumed that the order is based upon a continuous interaction of the child and his environment, where earlier achievements make other higher level forms of interaction possible and in turn lead to new achievements." The scales may also be used to interpret child behavior to mothers and to determine levels of stimulation activity for each infant.

The teacher who is constantly assessing and analyzing an individual infant is able to choose, adjust or relate activities cross-sectionally from a sequence to fit the child if she knows the purpose of the activities and has a sense of total developmental organization. The present curriculum development includes two key areas. The first is the development of cognitively related activities. Teachers are governed in the presentation of activities in a unit by

(a) Always including the desired behavior in the activity so that the teacher can make alterations to assure the child success or create new but similar activities most appropriate to a particular child

Dutch Master
PANETELAS

(b) Identifying concepts within the sequences as subtopics to clarify what is being taught (for example, putting an object inside of another object is essential to the concept of container).

Following is an outline of the Uzgiris-Hunt Scales and the sequences contained in each. A sample teaching agenda (range of potential activities) presently being developed for one of the areas is also presented.

OUTLINE OF INFANT ACTIVITY UNITS
FROM UZGIRIS-HUNT SCALES

Unit 1) Visual Pursuit and Permanence of Objects

Sequences:
a. Visual Search
b. Partial Disappearance
c. Complete Disappearance
d. Superimposed Screens
e. Invisible Displacement
f. Series of Displacement

Unit 2) Development of Means for Achieving Desired Environmental Events

Sequences:
a. Eye-hand Coordination
b. Secondary Circular Reactions
c. Differentiation of Means and Ends
d. Use of Other Objects as Intermediaries
e. Representation of Means

Unit 3) Development of Causality

Sequences:
a. Effort to Prolong Interesting Inputs
b. Use of Procedures to Maintain Interesting Inputs
c. Use of Direct Action to Maintain Interesting Inputs
d. Objectification of Causality
e. Representative Causality

Unit 4) The Construction of the Object in Space

Sequences:
a. Development of the Notion of Recognizable Object
b. Development of Understanding of Relationships Between Objects
c. Interest in the Phenomenon of Fall
d. Representation of Objects in Space

Unit 5) Development of Imitation

Sequences:
a. Beginning of Differentiation in Vocal Productions
b. Development of Imitation of Sound Patterns
c. Imitation of Words
d. Imitation of Familiar Gestures
e. Imitation of Unfamiliar Gestures

SAMPLE TEACHING AGENDA
ACTIVITY UNIT 4

The Construction of the Object in Space

A. Development of the Notion of Recognizable Object

1. Present two different colored objects to baby lying in supine to stimulate baby to look from one object to another.

2. Shake a noise maker on either side and above head to stimulate baby to locate object.

3. Present two stationary objects to baby in sitting position to stimulate baby to look from one to another.

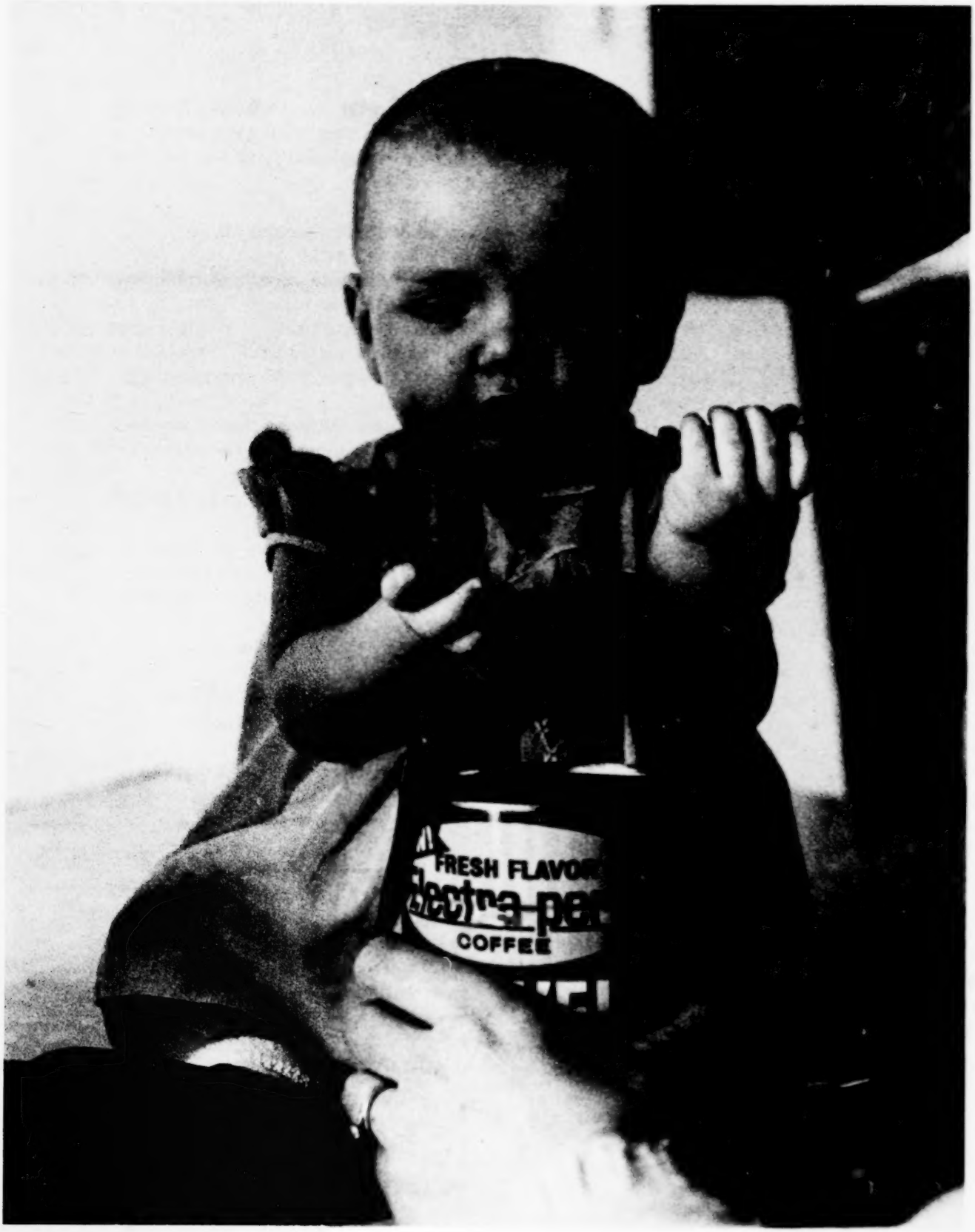
4. Shake a container with objects in it to stimulate baby to look in container for noisemaker.

5. Attract baby's attention with a colorful object. Move the object slowly toward screen from the right, continue behind screen moving it to make it reappear on the opposite side of the screen. Repeat the sequence to stimulate baby to glance to the side of the screen where the object will reappear. Reverse directions - from left to right.

6. Drop a bright colored object from a height, to stimulate baby to follow object to floor and begin awareness of trajectory.

7. Drop object so that it hits another surface before it falls to the floor and rolls out of sight to stimulate baby to look in direction of fallen object.

8. Present object with definite reverse sides. Present object with wrong sides to stimulate baby to turn object to the right side.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COFFEE

The second key area in the development of the curriculum is language. The general goal of the project in language development is to increase the mother's awareness of the child's developing language ability and to help her offer him appropriate aid and encouragement.

Specific goals may be stated in terms of developmental areas:

1. Vocabulary development.
   a. Word recognition, including the ability to recognize recurrence of words and to divide utterances into words.
   b. Word production, ranging from the replicable production of some collection of speech sounds, whether meaningful or not and without regard to occurrence in adult language, to progressively finer articulatory discrimination.
   c. Meaning, ranging from the discovery of some correspondence between a word and the real world to the development of a large vocabulary of definite and interrelated meanings.
2. Combination of words into longer utterances, with regard to both production and comprehension.
   a. Simple combination. Any words put together in any order to indicate that a situation talked about has to do with both, or comprehending that an adult utterance involving two words is about both of them in an interdependent way.
   b. Development of restrictions on word combinations.
      (1) Development of grammatical classes.
      (2) Development of a variety of grammatical structures.
3. Awareness and exploitation of language as communication.
   a. Awareness of speech as directed to child.
   b. Awareness of own vocalization as affecting environment.
   c. Progressively more discriminate awareness of relations between particular utterances and meanings.

Clearly most of these areas and sub-areas may be chronologically ordered, if at all, only with respect to their onsets, since there is overlap. Instead of taking each area in turn and completing it before going on to the next, the teachers try to help the mother to see that anything the child does which may be interpreted as linguistic activity is growth and an expression of his state of development. As with other areas of development, the mother's awareness and participation are encouraged largely through the use of activities which provide appropriate help for the infant, and at the same time opportunities for the teacher to point out how the child's behavior reflects his growth.

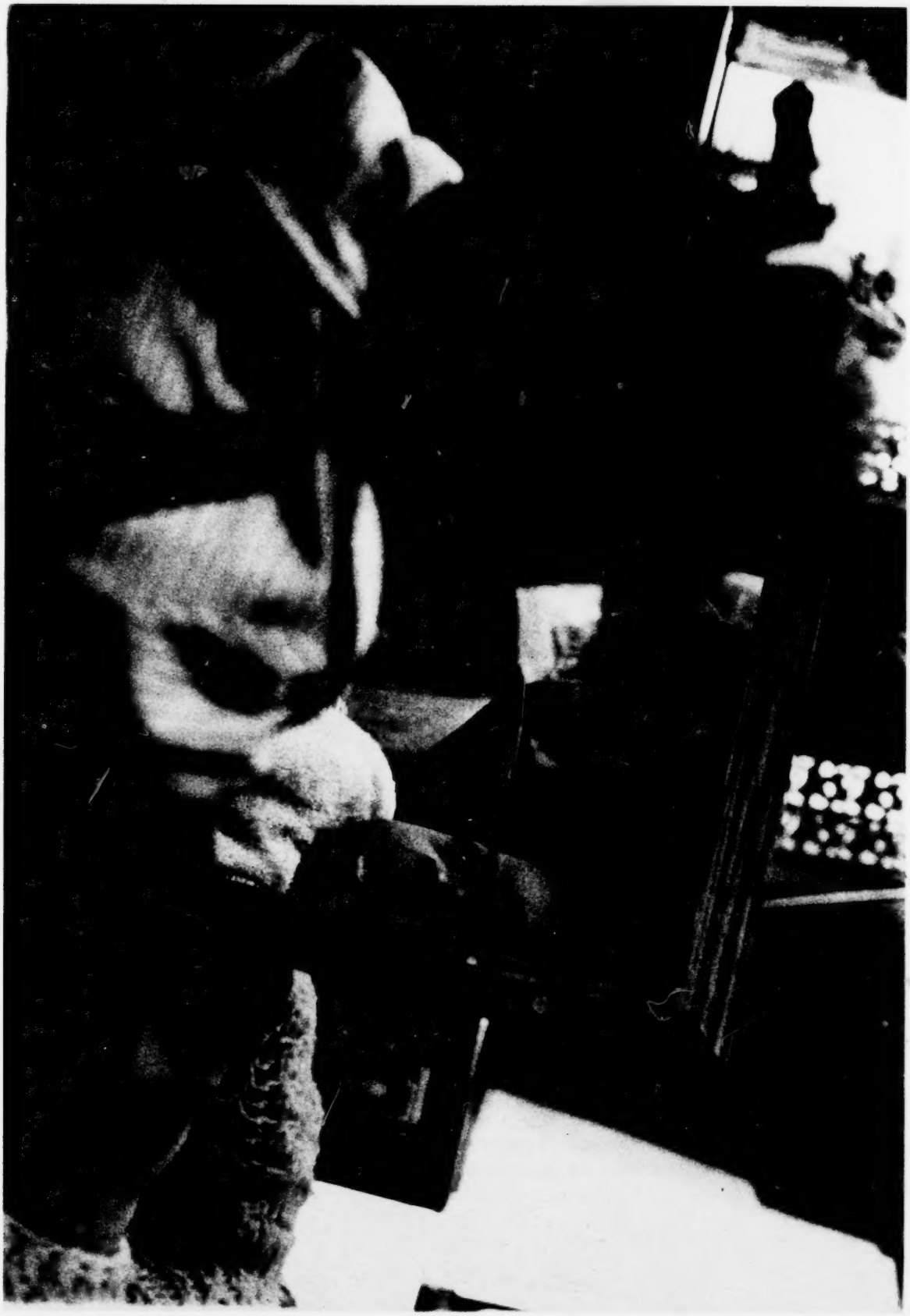
Below are some samples of language activities used by teachers in this project, organized in terms of their structural similarity, with indications of the goals they may serve and the situations in which they may be used. It is usual for one activity or type of activity to serve several ends simultaneously or be appropriate to more than one stage of the child's development. All linguistic activities are used in conjunction with other teaching agenda activities, since there is no practical reason to regard them as separate.

Language Activities

A. Imitation

The specific aim of imitation activities is to introduce the child to new vocabulary, grammatical items, etc., and to improve auditory and articulatory discrimination. It is of less importance to vary the complexity of material imitated according to the child's developmental level than to vary the degree of accuracy with which he is expected to imitate.

1. Pure imitation by adult of child's prelinguistic vocalization during normal play is used as specific reinforcement of vocal play and to encourage repetition of particular sound patterns. It increases the child's awareness of language as a special form of interaction and as a means of affecting his environment. During the later prelinguistic stages, it is more useful to "answer" the child's babbling with English, however.
2. Games in which child is encouraged to imitate adult speech.
   a. Naming activities.
      (1) Preverbal children: objective is child's first word. In course of normal play, feeding, etc., name objects slowly, clearly, and repeatedly.
         (a) Objects such as bottle, familiar toys.
         (b) Address baby by name.
         (c) Mirror play ("There's a BABY; there's MOMMY...")
      (2) Older children: objectives are increase of vocabulary, improvement of articulatory control, and increased accuracy in auditory discrimination.
         (a) Name variety of common objects, encouraging child to imitate.
         (b) Name pictures from magazines for child to imitate.
         (c) Gradually move to finer distinctions, both of sound (Doll: Ball) and meaning (Dog:Cat, Bowl:Cup).
      (3) Naming games are also used to introduce other linguistic areas, such as questions and simple predications ("What's that? That's a ...").



b. Imitation games involving both linguistic and nonlinguistic imitation. In general these activities stress the relation of words to actions, as opposed to objects, and thus may lead to differentiation of grammatical classes.
   (1) Peek-a-boo.
   (2) Pat-a-cake.
   (3) Wave (and say) bye-bye.
   (4) Give it to...

c. Imitation with substitution. In general, these are activities holding some part of a situation and/or utterance constant while changing another part. The objective is to establish equivalences among substituted items.
   (1) Show me your nose/eyes/doll...
   (2) Give it to Mommy/Mrs. Miller/the doggie...
   (3) Find the block/ball/beads/clown...
   (4) Find/hide/give me the ball/block/doll...
   (5) Give me the red/blue/big...ball.

Note: In all the above, the child is encouraged to imitate the speech as well as the actions involved.

3. Imitations with expansion.
   a. Elaborations. Adult repeats nearest correct English equivalent of child's utterance, and encourages imitation. For example:
      (1) Child: Baw. Adult: That's right, ball.
      (2) Child: Dat baw. Adult: Yes, that's a ball.
      (3) Child: Mommy ball. Adult: Yes, Mommy has the ball.
      Clearly it is necessary to use situational clues for the best elaboration.
   b. Extensions. Child is encouraged to repeat a gradually extended utterance. Examples:
      (1) Ball
          It's a ball.
          It's a big ball, etc.
      (2) There's a ball.
          There's a ball and a duck, etc.

B. Comprehension

In general, this class of activities is very similar to that under A (imitation), except that the child is asked to show by some response, verbal or nonverbal, depending on his ability, that he understands what is said.

1. Vocabulary.
   a. Determine whether child responds differentially to own name.

b. Ask child for familiar objects by name.
c. Ask child to point to objects, persons in mirror, or in pictures.
d. Use a simple imperative with a variety of verbs. For example: Show/give me the ball, hide/find it, etc.
e. Ask child to pick out objects by size, shape.

2. Words in combination. Objective is to explore child's ability to respond to two or more parts of a single utterance as related.
   a. Show pictures of objects in pairs, ask child to point to pictures. (Show me the boy and the dog; the dog playing with the ball, etc.)
   b. Require child to respond to imperatives in which two parts are simultaneously varied.
      (1) Give Mommy the ball; give me the block, etc.
      (2) Where's your nose? Where's Mommy's ear, etc.
      (3) Show pictures of a variety of situations, ask child to point to the dog running, the boy sitting down, the girl playing ball, etc.

C. Production

Production is distinguished from imitation in that the general goal is to encourage the child to use his own words and phrases to express his own thoughts and desires, rather than to parrot what adults have said.

1. Vocabulary.
   a. Ask child to name familiar objects.
   b. Encourage child to ask for toys, bottle, etc. by name.
   c. Encourage child to name his reflection in mirror, to call people by name.
   d. Ask child for descriptions of situations (What's he doing? Where's your doll? etc.)
2. Attempt to elicit longer utterances.
   a. Ask child for progressively more detailed descriptions of pictures, prompting (but not supplying too much) when he stops.
   b. Tell child familiar story, stop occasionally and ask him what he thinks will happen next.
   c. Encourage child to express desires verbally, rather than with gestures. When he asks for something with just its name, try to get him to expand before giving it to him.

The sample activities listed above are not intended to constitute an exhaustive list; rather they are indications of what may be done, and our teachers vary their verbal interactions with the child considerably depending on the demands of the situation.

PLANNING, REPORTING AND IMPROVING TEACHER SKILLS

The teachers use all information available to them (Bayley, YPSI, Activity Lists, etc.) to determine appropriate activities for mother and child. (See section 4 for an annotated list of the testing instruments used.) It is not helpful for the teacher or mother to have a score on an infant test (and project research requirements do not permit it), but it is essential that both the mother and the teacher observe the test administration. This organized observation yields more usable information for planning than several observations of random behavior. In addition, it is planned to use the Uzgiris-Hunt scales as informal check lists of each child's progress to maintain the teacher's orientation to continual diagnosis.

Another way of helping teachers improve their performance has been to use video tape. The initial intention of the video tapes was to show various conditions the teachers must face in the homes: active, baby, responsive mother in loud environment, passive baby, passive mother in quiet environment, etc. The tapes were only fair representations of the situations. For example, in one filming session the passive baby-passive mother dyad turned into a responsive baby and frightened mother who could not even talk, leaving the impression on the tape of a teacher working with the baby alone, since the teacher's attempts with the mother were so subtle and "soft" most viewers missed them completely. However, the tapes have documented what does happen in the homes to some degree. The major strength of the tapes has been in teacher training through improvement of teaching skills and use with new teachers. As one staff member stated about the video tapes, "Just show them to the teacher, and a teacher with any sensitivity at all will respond to seeing her method of operation on tape." The gross magnification of errors, strengths, and the opportunity for comparisons of time samples is most effective in eliciting discussions about methods, techniques, and responsibilities.

A typical lesson plan and evaluation for one visit is given next. The format was devised to help the teacher concentrate on both mother and child during each activity. The first three categories (Goal, Conditions, Technique) are the lesson plan prepared before the home visit. The last three (Actual Performance, Teacher Intervention, Trends and Recommendations) are a record of what happened during the session.

LESSON PLAN:	MOTHER	CHILD (11 months of age)
GOAL Terminal Behavior for Acceptable Performance	To understand concept of activity	(construction of objects in space) Development of understanding relationships between objects
CONDITIONS (activity)	1) Drop objects through hole in lid of container and remove objects by prying off lid. 2) Manipulating pegs in primary peg toy.	
TECHNIQUE	Explain purpose of activity giving other examples of same concept and ask if he has done similar things before	1) Give can with lid on the blocks separately. If unable to drop blocks in -- demonstrate. If no attempt to remove lid -- demonstrate prying. 2) Give primary pegs with pegs in place
ACCEPTABLE PERFORMANCE (specifically)	Close observation and participation in activity, any comments made indicating understanding	1) Will drop into can either spontaneously or with demonstration -- will also make attempt to pry lid either spontaneously or with demonstration. 2) Will remove pegs -- finger holes and make a brief attempt to replace one peg although unsuccessful in fitting peg accurately
ACTUAL PERFORMANCE	Mother very involved in activity -- discussed other activities baby did -- only those with identical condition. During peg activity -- mother suggested to T. that one peg at a time be used -- mother did so -- verbally encouraging baby to replace peg.	Immediately dropped blocks thru hole in lid -- attempted to get block by reaching thru hole -- with demonstration tried to pry lid up -- also tried to put lid on himself to continue game. 2) Immed. pulled pegs out, inspecting each and mouthing them, banging and picking up toy itself, turning it over inspecting carefully -- made no attempt to finger hole or to make contact with peg in hole -- threw pegs on floor each time he finished mouthing and banging.
TEACHER INTERVENTION	Teacher explained similarity between activities	Teacher noticed baby had some difficulty manipulating large can on highchair so held it next to side encouraging baby to put blocks in
TRENDS & RECOMMENDATIONS	Mother needs experience in relating separate activities to a single concept	Bring smaller can to make it easier to use on table top

	MOTHER	CHILD (11 months of age)
GOAL Terminal Behavior for Acceptable Performance	Mother's awareness of baby's interest in finding lost objects	(visual pursuit and permanence of objects) Baby follows object thru complete disappearance
CONDITIONS (activity)	1) Hiding toy under one of two screens to stimulate following a hidden object 2) Hiding toy under one of two screens alternately to stimulate following and finding a hidden object without returning to original position of screen	
TECHNIQUE	Verbalize purpose of activity providing mother with possible responses from baby	1) Place 2 cans on table -- hide favorite toy under one stimulating looking under to find it. 2) Hide toy first under 1 can then alternate with other can to stimulate finding toy without returning to original position
ACCEPTABLE PERFORMANCE (specifically)	Observing activity, acknowledging Teacher's comments on baby's performance	1 & 2) Will immediately follow and pick up appropriate can retrieving toy
ACTUAL PERFORMANCE	Mother surprised when baby lifted each can until he found toy -- asked Teacher how she thought up these activities	1) Baby immediately began knocking down and grabbing can but not aware at first that toy was under it. After 2nd attempt, immediately grabbed for can to retrieve toy -- repeated this several times. 2) Baby immediately grabbed for appropriate can, retrieving toy
Teacher INTERVENTION		
TRENDS & RECOMMENDATIONS	Mother interested and involved, will see if she relates any similar activities during next session	Teacher actually watched baby increase skill in retrieving toy from appropriate can -- will provide more experience in this area

	MOTHER	CHILD (11 months of age)
GOAL Terminal Behavior for Acceptable Performance	To realize need to stimulate baby in new developmental areas	To develop imitation of sound patterns and to use direct action to maintain interesting inputs (development of imitation and causality)
CONDITIONS (activity)	1) Repeat infant's familiar sound patterns while he's looking in mirror 2) Repeat infant's familiar sound patterns into a container	
TECHNIQUE	1) Discuss purpose of new activity area 2) Join in activity to modify language, if necessary	1) Hold mirror in front of baby -- repeat sounds baby makes -- if silent, make familiar sounds to induce imitation of same from baby. 2) Holding can against mouth, Teacher vocalizes familiar sounds then hands can to baby for imitation.
ACCEPTABLE PERFORMANCE (specifically)	Mother performs language activity	1 & 2) Baby imitates sounds and/or returns can or mirror to Teacher to repeat activity
ACTUAL PERFORMANCE	1) Teacher had left mirror on kitchen table after going into living room -- mother noticed mirror commenting, "We didn't show him this" and brought mirror in showing it to baby -- she tried to encourage baby to look at self saying, "there's the baby see the baby;" also told how he became intrigued with a friend's full length mirror talking and playing with his image. 2) Mother observed activity quite excitedly as baby directed his responses to teacher.	1) Grabbed mirror excitedly, pushed face toward it smiling -- non-verbal at first then began vocalizing for few seconds but more excited breathing rather than vocalizing -- kept grabbing mirror pushing it away then close again. 2) Pushed can against face without producing sounds -- handed can to teacher for continuation of activity -- repeated this several times.
TEACHER INTERVENTION	Teacher joined in mirror activity producing familiar baby sounds rather than words mother was using -- mother picked up teacher's style and continued activity	

	MOTHER	CHILD (11 months of age)
GOAL Terminal Behavior for Acceptable Performance	Awareness of baby's ability to secure an out of reach object -- induce mother to relate or give similar activity	Development of use of other objects as intermediaries (development of means for achieving ends)
CONDITIONS	1) Present baby with string attached to toy resting on floor to stimulate vertical pulling to obtain out of reach toy 2) Present baby with string attached to toy out of reach to stimulate horizontal pulling 3) Present baby with diaper and favorite toy at opposing end to stimulate pulling diaper to reach toy	
TECHNIQUE	Comments about baby's performance as he performs -- wait for mother to take initiative	1) Dangle toy by string -- drop toy to floor -- giving string to baby. 2) Place toy out of reach leaving string within baby's reach. 3) Place toy on far end of diaper leaving opposite end of diaper within reach.
ACCEPTABLE PERFORMANCE (specifically)	Mother assumes an active role by offering a similar toy and/or relating a similar experience she had with baby	1) Will vertically pull on string until he reaches toy then immediately grabs toy. 2) Will manipulate and pull string toward him until toy is within reach, then grabs toy. 3) Will pull diaper toward him until toy is within reach, then grabs toy.
ACTUAL PERFORMANCE	Mother had related to teacher how older children had been playing with baby using pull toy and showing him how to manipulate it with the string. After baby finished playing with toys teacher brought, mother went to get toy children used with him and verbally tried to interest baby in pulling string -- seemed pleased when baby began pulling string to reach toy	2) On first attempt, baby succeeded in reaching toy by pulling string. On 2nd attempt, baby pulled with more force compelling toy to fall toward floor although baby held onto string. Baby began manipulating, watching toy dangle -- repeated dangling several toys but unable to pull string vertically with enough force to reach toy. 3) Manipulated and pulled diaper toward him grabbing toy when it was within reach -- repeated this several times.
TRENDS & RECOMMENDATIONS	Continue to encourage mother's active participation in lesson.	Since baby did not succeed in reaching toy by vertical pulling, will provide more activities in this area.

PART 4

REVIEW OF THE PROJECT DESIGN

The outcomes of the project are expected to be found in four major areas: (1) language style of the mother, (2) teaching style of the mother, (3) child management style of the mother, and (4) growth and intellectual development of the child. The work during the pilot phase of the project was directed mainly at the development of instruments and reporting procedures to meet the research demands of the project. It is recognized that most of the essential measures of concern to the project will not be made until the final testing sessions at the end of the project. The comparison among groups will produce the most important information about the impact of the intervention.

The basic design of the project has been altered in two ways to increase the amount of information that can be gained. First, two control groups have been added to the original experimental group and contrast group. Basically, the experimental group (N=33) receives home teaching by qualified and supervised teachers, who employ a theoretically based curriculum. The contrast group (N=33) receives home visits by concerned community women and college age girls who wish to help the family. The curriculum employed is "intuitive" to the volunteers. The first control group (N=33) receives all testing but no other intervention, and the second control group (N undetermined) receives only initial and then final testing without further intervention of any sort.

The second change in the design was to include a study on "age-at-time-of-intervention." This is being accomplished by phasing in the children of all groups at three months, seven months, and 11 months of age. This factor was added primarily in an attempt to provide evidence on the question of possible differential effects of entering an education program at different times in infancy.

TESTING INSTRUMENTS USED

While most of the essential measures of project impact will be made at the end of the intervention period, a number of instruments have been employed throughout the project period. Most of these instruments pertain directly to the specific research goals of the project, while some are more directly concerned with description of either the sample being studied or the process of intervention. Special emphasis is given to the fact that a trained observer, i.e., the teacher, is in the home of experimental families once each week. The volunteers are also

involved in the homes of the contrast group on a once-a-week basis and an attempt is made to solicit information from them as well.

Maternal Behavior Inventory. This 186 item inventory is completed by the teacher on each mother after the third visit to the home and at intervals throughout the project. The inventory, developed by Dr. Earl Schaefer of the National Institute of Mental Health, assesses a wide range of dimensions such as the observer's rating of the mother's practice in discipline, amount of anxieties, irritabilities, sociabilities, etc.

Teacher's Report, Form B. This report form was developed by the project staff to provide assessment of each teaching session. The teacher records her observations of the infant and the mother and documents the instructional activities. The lesson plan report included in part 3 of this report is from one of these report forms.

Infant Cognitive Home Environment Scale. This instrument represents an attempt to revise downward a Cognitive Home Environment Scale used with preschool children. It explores the stimulation provided by the home.

Infant Information Inventory. General information is obtained with this form on the physical surroundings of the home and the general family situation.

Infant and Maternal Medical History. This medical form is designed to obtain information on the prenatal and birth history of the mother and child. It was developed locally with consultants from the medical staff of the University of Michigan Hospital.

Ypsilanti Picture Sorting Inventory (YPSI). This instrument, developed by project staff, provides information on the mother's perception of her child and his stage of development. Especially important is the information gained from the test on the mother's ideas about the child's rate of growth and development. The instrument was discussed in more detail in the curriculum section of this report.

Bayley Infant Scales of Development. These scales were accepted by the project as the major assessment device of the infant's growth and development for several reasons. First, the BISD is the most recent major scale to be revised for publication and as such has had throughout its development the advantage of the availability of the previously published infant scales (Gesell, California, Cattell, etc.) and the more recent state of knowledge and theory in the field of child development. Second, the Bayley has greater age-specificity in its items, high saturation

of the early age levels with items, and is at least as easily administered as any of the other scales. Third, the test does not suffer, as do several older scales, from the possible ambiguity of scoring introduced by either the use of substitutable items or the scoring of mother reports. Fourth, it is anticipated that the test will receive very wide use as an assessment device in infant educational research; and the use of the BISD by the Carnegie Project will then allow for a more ready comparison of the results of this program with those of similar programs. Fifth, and most importantly, the Bayley has gone through the most rigorous and sophisticated standardization process to be used with any infant scale (sponsored by the Psychological Corporation of New York). In addition, the standardization was accomplished in such a way as to allow for the calculation of a deviation IQ, a factor which greatly increases its value and reliability as a research instrument.

Kagan Measures. While the Bayley Infant Scales of Development has been adopted as the basic assessment instrument of the program, a decision was made to adapt several techniques developed by Kagan (1968) in view of the impressive evidence he has found for what appear to be inherent differences in psychological organization and rate of cognitive growth. If such differences are relatively stable for an individual, there is a strong possibility that they may in some way interact with the overall effects of the intervention project. It would seem critical, therefore, that such differences be measured.

Traditional intelligence scales such as the Bayley do not seem to reflect inherent determiners to any great extent. One possible explanation for this lack is that traditionally intelligence tests have attempted to maintain a continuity over time by tapping essentially the same process at all ages. Stott and Ball (1963) refer to this with respect to the earlier Bayley scale, the 1933 California First Year Mental Scale: "Effort was made also to provide continuity of content by using appropriate tests of the same functions at successive age levels, a condition so lacking in most intelligence scales." This is the type of continuity which Kagan refers to as "homotypic."

Kagan has distinguished another type of continuity between two behavioral variables that are manifestly different but theoretically related. "Crying to strangers at eight months, for instance, might index precocious schema development and, as such, not predict crying at five years but rather a large vocabulary." If there is in the child a stable, underlying, congenital process of the sort tacitly assumed in the development of the infant intelligence scales, perhaps it is not being measured as such because of different behavioral manifestations at different periods in the child's growth. Thus the approximately zero correlation which Bayley found in her test-retest of the California Scale from under a year to 18 months might well have been due to the attempt to enforce homotypic continuity.

In an attempt to trace one such underlying process with different behavioral manifestations at different ages and also to provide partial replication of Kagan's (1968) work, the project has adopted a portion of his assessment program. Included at five months of age are three-dimensional faces and two-dimensional photographs of faces. The testing at nine months includes the faces as before along with an auditory stimulus situation and a free play situation. The 13 month testing program includes the faces and auditory and free play situations as before; in addition, human forms are presented. The variables to be employed are eye fixation, vocalization, smiling and fussing, head turning, length of attention, etc. Unlike the Bayley, the Kagan "test" does not give a score but will be employed to provide basic growth and intellectual development data.

PART 5

CONCLUSIONS

With the project now a year in operation, it is possible to see the potential of home teaching. Perhaps the most important observation is that the process of a teacher, a mother, and an infant getting ready to learn together is even more critical than what is actually done. To be sure, the teacher must have ideas and "expertise" to assist the mother and infant in learning, but that is a long way from simply providing a family with a series of exercises like those presented in an infant development manual. The process of helping the family become prepared for teaching is still a fairly intuitive one on the part of the teacher. It includes great persistence by the teacher in focusing the mother's attention on the educational problems at hand. The process includes absolute flexibility in lesson plans to meet the mother half way in whatever direction is necessary to help her focus on her child. In short, the human relationship, in an almost romantic sense, is the essential condition for any educational growth. Without this relationship, nothing will occur.

Perhaps a second observation is the gradual realization that child development "theory," no matter how sophisticated, does not have as much to say as desired about specific children and their mothers. A teacher must be ready and willing to step slowly through the great distances that separate landmarks in the child's development. Using a baby's table-banging as the occasion to introduce "bang bang" vocalizations to accompany the thumping would be an example of "making do" within a real teaching situation. A teacher must blend the needs of the mother with the needs of the infant in such a way as to maximize the learning opportunity for both.

Whether or not the basic hypothesis of this research, that education in early infancy can prevent intellectual and educational handicaps, will be found to be true, the essential fact at this point is that disadvantaged families are willing to accept infant education. The job at hand is to do this effectively.

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